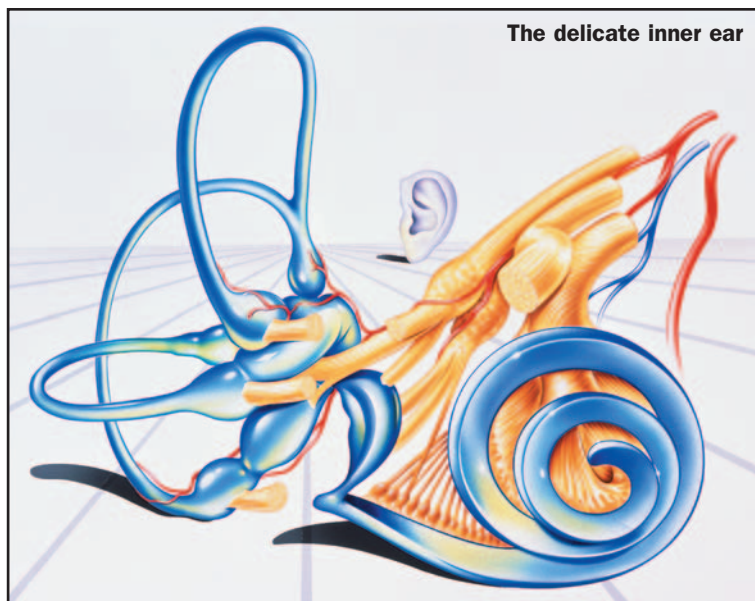


Music to Your Ears . . . or Hearing Loss



Your ears work hard to keep loud rock music out of your head. It's true. Preventing sound sensation may seem like a peculiar thing for a hearing mechanism to do, but the middle ear does just that.

Thin membranes, tiny bones, irreplaceable hair cells—the intricate structures of the hearing process are extremely delicate. The middle and inner ear are encased in the hardest bone in the body to protect them from most physical bumping and jostling. However, the biggest risk of injury comes from the very thing the ears are designed to handle—sound.

Signs of Hearing Loss:

- Tinnitus (ringing in ears)
- Sounds seem muffled
- Periodic hearing loss
- Difficulty hearing quiet sounds
- Ears feel “full”
- Difficulty separating voices when there is background noise

Try This!

Cup your hand around the outside of your ear and bend your pinna (outside ear) forward slightly toward the source of a sound. Notice how much louder the sound appears with your hand enlarging the pinna's surface area. The larger the pinna, the more sound is directed into your ear. Old-fashioned ear trumpets acted as enlarged pinnae to help people hear better.



Warning Signs That Your Music May Be Loud Enough to Damage Your Hearing:

- People complain to you about it. If music is too loud for another person's comfort, it's probably pumping out enough decibels to damage your ears, too;
- When the music stops, you hear ringing or buzzing in your ears; and/or
- You experience some hearing loss for several hours.

It doesn't have to be rock music, by the way. Any loud music or noise (such as a lawn mower engine) will set two tiny muscles to work pulling the membranes on either side of the middle ear in an effort to stop them from vibrating too wildly. When these muscles grow tired, they become ineffective and the ear is bombarded with too much sound. If a loud enough sound reaches the inner ear often enough, over a long enough period of time, it may cause permanent damage to the hair cells. The louder the sound, the less time it takes for hearing loss to occur . . . at 115 dB, or decibels—the noise from a chainsaw, for example—this can take less than 15 minutes.

Hearing loss results because damaged hair cells cannot fire nerve impulses, so no sound information reaches the brain. While frogs and sharks grow new hair cells throughout life, people don't, so this type of hearing loss is permanent.

Noise-induced hearing loss affects mainly the higher frequency ranges (human voices are usually among the first to go). Hearing aids, which boost all frequencies evenly, are of little help. "Audiologists and hearing

specialists will earn a lot of money soon, when the 'rock' generation reaches their sixties!" says Roederer.

So, be kind to your ears—years of good music await!

Adapted from an article by Fiona Bayrock

Hearing "Bells"

Sound intensity (loudness) is measured in units of decibels (dB), the "bels" a shortening of "bells," from Alexander Graham Bell, the inventor of the telephone. The decibel scale usually ranges from 0–140 dB. Any sound above 85 decibels can cause ear damage. Talking softly is about 30 dB. Typical conversation is about 60 dB. But a jet, a boom box, headphones, or a rock concert can be 100 to 140 dB, easily capable of causing permanent hearing loss in minutes or seconds.

What You Can Do to Help Prevent Hearing Loss From Listening to Music:

- Turn down the volume. The quieter, the better—but even a small reduction could make a big difference.
- Take breaks every 10 to 15 minutes to allow your ears to rest.
- Choose room speakers instead of earphones. You may not realize how loud your earphones are, but another person in the room might help to keep the speaker volume at a reasonable level.
- Wear protective earphones or plugs when exposed to loud noises, such as at a concert.
- If you find yourself standing in front of speakers at a concert, move.
- Plug your ears with your fingers when you encounter unexpected loud noise.
- Pay attention to the warning signs. If you experience temporary ringing in your ears or hearing loss after listening to music, change your listening habits to prevent it from happening again. Next time, these effects may be permanent.
- Have your ears tested regularly, so if you are experiencing hearing loss, you can make changes to slow or stop the process.